

CLAIMS

1. A system accessing and transmitting different data frames in a digital transmission network for accessing and transmitting different data frames, comprising:

at least a user-network interface (UNI), which is used to couple with the user's network; and/or at least a network-network interface (NNI), which is used to couple with said digital transmission network to transfer data; and

a data converting device, which is coupled with said UNIs and said NNIs to convert data formats between said UNIs, data formats between said NNIs, or data formats between said NNIs and said UNIs;

Said data converting device comprises a virtual interface device, said virtual interface device comprises: at least two device interfaces which comprises UNIs or NNIs, for inputting or outputting data frames; a virtual interface processing unit, which couples with said device interfaces to process said data frames and exchange said data frames between said virtual interface processing unit and corresponding device interfaces; rule database, which couples with said and stores rules corresponding to different data frames, said virtual interface processing unit determines the processing flow according to the classification of data frames under said rules; a control interface unit, which couples with said rule database and said virtual interface processing unit to control them; an inter-device interface, which couples with said virtual interface processing unit to couple with external devices to exchange data.

2. A system accessing and transmitting different data frames in a digital transmission network according to claim 1, wherein the corresponding relationship between said device interfaces and

said rules is 1: N (N is a natural number greater than 1), and each device interface is configured as a device interface meeting the requirement of the data interface corresponding to any of the rules.

3. A system accessing and transmitting different data frames in a digital transmission network according to claim 1 or 2, wherein said control interface unit provides an external control interface, through which to inspect the operation of the virtual processing unit, and add, delete, modify and search operations are performed to rules in said rule databases.

4. A system accessing and transmitting different data frames in a digital transmission network according to claim 3, wherein the rule comprises device interface number, data frame type number, data frame address offset, data frame type value, and data frame comparison mask, which provides relevant processing and control parameters when said virtual interface processing unit processes said data frames.

5. A system accessing and transmitting different data frames in a digital transmission network according to claim 1, wherein said device interfaces connect with said UNIs or said NNIs, the corresponding relation between said device interfaces and said UNIs or said NNIs is 1:1, and said inter-device interface connects with said data processing and dispatching device.

6. A method of accessing and transmitting different data frames in a digital transmission network through the system of claim 1, said system comprising a data converting device comprising a virtual interface device, wherein said method comprises the following steps:

Searching for a rule corresponding to said device interface;
Determining whether said rule is found, if not, ending the

process;

 If yes, obtaining the type information of the data frames;
 determining whether said type information complies with the
second rule in the rules;

 If not, searching for the next rule corresponding to the device
interface, and determining again whether said rule is found;

 If yes, modifying said data frames information, outputting
the data frames via the inter-device interface, and then ending
the process.

7. A method of accessing and transmitting data frames in a
digital transmission network according to claim 6, wherein when
the data frame enters the device via the inter-device interface,
said virtual interface device also performs the following steps:

 Extracting the type information of the data frames, and
searching for corresponding rule in the rule database according
to said type information;

 If the rule is not found, discarding said data frames and ending
the process;

 If the rule is found, modifying said data frames information,
and sending the data frames to corresponding device interface
according to the rule.

8. A method of accessing and transmitting data frames in a
digital transmission network according to claim 6, wherein the
rule database is searched according to the number of device
interface receiving the data frames.

9. A method of accessing and transmitting data frames in a
digital transmission network according to claim 6, wherein said
step of the rule being not found comprises the step of outputting
a report and discarding said data frames.

10. A method of accessing and transmitting data frames in a

digital transmission network according to claim 6, wherein the step of obtaining the type information of the data frames comprises: read the information at the address offset according to the data frame address offset, and perform "AND" operation between said read information and data frame comparison mask in the rule.

11. A method of accessing and transmitting data frames in a digital transmission network according to claim 10, wherein the step of determining whether the type information complies with the second rule in the rules comprises the following step: comparing the type information with the data frame type value in the rules.

12. A method of accessing and transmitting data frames in a digital transmission network according to claim 10, wherein the step of modifying the data frames information comprises the following step: inserting the data type number information at the head position of the data frames.

13. A method of accessing and transmitting data frames in a digital transmission network according to claim 7, wherein the step of extracting the type information of the data frames comprises the following step: extracting the data type number information at the head position of the data frames.

14. A method of accessing and transmitting data frames in a digital transmission network according to claim 13, wherein the step of searching corresponding rule in the rule database comprises the following step: searching in the rule database with the index of the data frame type number.

15. A method of accessing and transmitting data frames in a digital transmission network according to claim 14, wherein the step of modifying the data frame information and sending the data

frames to corresponding device interfaces according to corresponding rules comprises the following steps: deleting the data type number information at the head position; and sending the data frames to corresponding device interfaces according to the device interface number in the rule.